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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/719,046 | 11/24/2003 | Vladimir A. Fedchun | 1568-003 | 2332 |
| 26824 | 7590 | 05/13/2005 | EXAMINER | |
| ALEX RHODES UNIT NO. 9 50168 PONTIAC TRAIL WIXOM, MI 48393 | | | YEE, DEBORAH | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 1742 | |

DATE MAILED: 05/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/719,046

Applicant(s)

VLADIMIR A. FEDCHUN ET AL.

Examiner

Deborah Yee

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date ____ | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1,3 and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Dubois (US Patent 6,699,333).
3. Dubois on lines 20 to 30 and lines 50 to 60 of column 11 discloses a steel alloy that meets the claimed composition and properties. Even though prior art does not disclose a microstructure of lath martensite enveloped by a minor phase of retained austenite, such would be expected since composition and properties limitations are met, and a similar process of making by austenitizing, quenching and tempering is taught, and also in absence of proof the contrary.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 2, 4 to 9 and 11 to 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dubois (US Patent 6,699,333) in view of ASM Table 1.1

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6. Dubois on lines 20 to 30 and lines 50 to 60 of column 11 discloses a carburizing steel alloy that meets the claimed composition except for the carbon content. Prior art contains 0.06 to 0.18% C whereas the present invention recites 0.35 to 0.5%. It is the examiner's position that once the prior art steel has been carburized, steel would contain a higher carbon content that would be closely within the claimed C range.

Moreover, it is a well known in the metallurgical field as evident by ASM Table 1.1 that increasing C content strengthens and hardens steel. Since these properties are desired and sought by Dubois, then it would be an obvious modification well within the skill of the artisan to increase carbon to produce no more than the known and expected effect of such an increase. In any event, the differences between the prior art and present invention would amount to no more than routine optimization of alloying constituents to achieve the desired balancing of properties which is well within the skill of the artisan and productive of no new and unexpected results.

7. In regard to claim 2, note that prior art alloy meets the Si to Cu ratio of 1 to 2.5.

8. Even though prior art does not disclose a microstructure of lath martensite enveloped by a minor phase of retained austenite as recited by claims 10 and 11, such would be expected since composition and properties limitations are closely met, and a similar process of making by austenitizing, quenching and tempering is taught, and also in absence of proof the contrary.

9. Claim 1 of Dubois teaches Mn, V and Ti ranges which overlap those recited by claims 4, 6, and 7, respectively.

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10. Dubois on lines 24-36 of column 4 discloses rolling or forging or carburizing to produce high strength and toughness which meet claims 5 and 8.

11. Although nitriding recited by claim 9 is not taught by Dubois, such would be obvious to incorporate since it is a conventional technique well known in the art for hardening steel surface. Moreover, nitriding recited by claim 9 is a future limitation not actively recited.

12. In regard to claims 11 to 14, Dubois on lines 18 to 50 of column 4 discloses method of melting alloying elements to produce a steel in molten state followed by casting, forming, austenitizing and quenching.

13. Claims 1 to 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Philip et al (US Patent 3,713,905).

14. Philip in claims 1 to 6 of columns 7 and 8 discloses a high strength and high toughness steel alloy having a composition with constituents whose wt% ranges overlap those recited by the claims. Note that such overlap establishes a prima facie case of obviousness because it would be obvious to one of ordinary skill in the art to select the claimed alloy ranges from the broader disclosure of the prior art because the prior art has similar utility and properties, see MPEP 2144.05.

15. Even though prior art does not teach the Si to Cu ratio of 1 to 2.5 recited by claim 2, such would not be a patentable difference since applicant has not demonstrated (e.g. by comparative test data), that the ratio is somehow critical and productive of new and unexpected results.

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16. Even though prior art does not disclose a microstructure of lath martensite enveloped by a minor phase of retained austenite as recited by claims 3, 10 and 11, such would be expected since composition and properties limitations are closely met, and a similar process of making by austenitizing, quenching and tempering is taught, and in absence of proof the contrary.

17. Philip in claims 1 to 6 discloses C, Mn, and V ranges that overlap those recited by claims 4, 6 and 7.

18. Also Philip in claim 6 teaches case hardening which would broadly include carburizing, nitriding, and quench hardening as recited by claims 8 and 9.

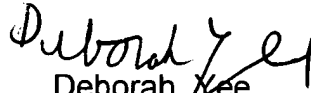
19. Philip on lines 31 to 50 of column 5 discloses forging, austenitizing and cooling which meets claims 10 to 14. Moreover, note table II of column 6, example 5 having hardness and strength values that meet those recited by claim 10.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Deborah Yee whose telephone number is 571-272-1253. The examiner can normally be reached on Monday-Friday from 6:00 to 2:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on 571-272-1244. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Deborah Yee
Primary Examiner
Art Unit 1742

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